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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/147,750	05/28/1999	MIKAEL ISAKSSON	2867-0144-2P	2143

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EXAMINER

DEPPE, BETSY LEE

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/147,750

Applicant(s)

ISAKSSON ET AL.

Examiner

Betsy L. Deppe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 36-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-23, 27-32 and 36-45 is/are rejected.
- 7) ☒ Claim(s) 8-10 and 24-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to the Amendment filed March 7, 2003.

Claim Objections

2. The claims are objected to because of the following informalities:

in claim 1, "having" on line 2 should be "comprising"; and

in claim 8, line 13, "," should be "and."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 16 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear what is meant by "system transit time for signals" in claims 16 and 32.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3, 5-7, 17, 19, 21-23, 36, 38, 40, 41, 43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al. (US Patent No. 5,470,447) in view of Verbueken (US Patent No. 5,867,528).

7. With regard to claims 1, 6, 17, 22, 36, 38, 40, and 41, Chow et al. discloses a multi-carrier transmission system comprised of a first and second transceiver wherein the bit loading parameters are updated using a control channel. (See abstract and column 12, lines 27-37) Since the bit loading/allocation tables are transmitted between the first and second transceivers, it is implicit that the channel used in the transmission of this information is a control channel and that both transceivers know the identity of the control channel in order to process the bit allocation data. However, Chow et al. does not teach changing the control channel to a different channel on the basis of channel characteristics.

Verbueken teaches changing a channel to a different frequency (i.e. a different channel) based on channel characteristics (e.g. signal-to-noise ratio). (See abstract; column 1, lines 46-54; column 2, lines 13-16; column 4, lines 6-29) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine

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the teaching of Verbueken with that of Chow et al. in order to avoid the corruption or distortion of the bit allocation table thereby ensuring optimal performance of the system.

8. With regard to claims 3, 5, 19, 21, 38, 40, 43 and 45, Chow et al. in view of Verbueken discloses that the multi-carrier transmission system is a DMT-based ADSL transmission system. (See Chow et al. column 1, line 52-column 2, line 35 and column 6, lines 61-67)

9. With regard to claims 7 and 23, Chow et al. in view of Verbueken discloses establishing a control channel and transferring the control channel. Although Chow et al. in view of Verbueken does not explicitly disclose enabling bit loading control and enabling of all the carrier waves, it is inherent that bit loading control and all the carrier waves must be enabled in order for the system to function/operate.

10. Claims 2, 4, 18, 20, 37, 39, 42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al. in view of Verbueken as applied to claims 1, 17, 36 and 41, respectively above, and further in view of Chow (US Patent No. 6,064,692).

11. With regard to claims 2, 18, 37 and 42, Chow et al. in view of Verbueken discloses the claimed invention including the first transceiver initiating changes in bit loading and control channel selection and the second transceiver effecting the changes. However, Chow et al. in view of Verbueken does not disclose the second transceiver measuring changes in channel characteristics and forwards the related data over the control channel to the first transceiver.

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Chow discloses a multi-carrier transmission system wherein the second transceiver measures changes in channel characteristics and forwards the related data over the control channel to the first transceiver. (See column 10, line 21-column 11, line 33) It would have been obvious to one of ordinary skill in the art at the time the invention was made implement the teaching of Chow into the apparatus disclosed by Chow et al. in view of Verbueken in order to efficiently determine bit allocation and with better centralized control.

12. With regard to claims 4, 20, 39 and 44, Chow et al. in view of Verbueken discloses the claimed invention including a DMT-based system. However, Chow et al. in view of Verbueken does not teach a VDSL system. Since Chow discloses the uses of a DMT-based system for Asymmetric Digital Subscriber Lines (ADSL) or Very High Speed Digital Subscriber Lines (VDSL), it would have been obvious matter of design to choice to apply the DMT-based system disclosed by Chow et al. in view of Verbueken to Asymmetric Digital Subscriber Lines (ADSL) or Very High Speed Digital Subscriber Lines (VDSL) based on the desired system requirements.

13. Claims 11-15, 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al. in view of Verbueken as applied to claims 1 and 17, respectively above, and further in view of Tzannes et al. (US Patent No. 6,072,779).

14. With regard to claims 11, 13, 27 and 29, Chow et al. in view of Verbueken discloses the claimed invention except for estimating channel characteristics using periodic transmission of a base sync frame wherein the base sync frames are

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transmitted at base sync intervals enabling the transceivers to identify a frame as sync frame.

Tzannes et al. discloses estimating channel characteristics using periodic transmission of a base sync frame wherein the base sync frames (i.e. the control frame in Figure 2) are transmitted at base sync intervals enabling the transceivers to identify a frame as sync frame. (See column 10, line 61-column 11, line 33) It would have been obvious to one of ordinary skill in the art at the time the invention was made implement the channel characteristic estimation technique disclosed by Tzannes et al. into the system disclosed by Chow et al. in view of Verbueken in order to determine a new bit loading table relatively quickly and efficiently and to synchronize use of the new table by the two transceivers.

15. With regard to claims 12 and 28, Chow et al. in view of Verbueken and Tzannes et al. discloses the claimed invention except for specifying that the channel characteristics include attenuation, phase shifting and variance. It is inherent that these channel characteristics affect the signal-to-noise ratio used for determining bit allocation.

16. With regard to claims 14 and 30, Chow et al. in view of Verbueken and Tzannes et al. discloses the claimed invention except for transmitting additional sync frames at intervals between the base sync frames. It would have been an obvious matter of design choice to transmit additional sync frames since applicant has not disclosed that transmitting additional sync frames solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with without

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transmitting additional sync frames. Whether additional sync frames are transmitted depend on how frequently the system synchronization must be updated.

17. With regard to claims 15 and 31, Chow et al. in view of Verbueken and Tzannes et al. discloses the claimed invention including issuing commands for system reconfiguration at the start of the BSI/control frame and effecting the reconfiguration at the start of the next BSI/control frame. (See column 2, line 63-column 3, line 2)

Double Patenting

18. Applicant is advised that should claims 1-5 and 17-22 be found allowable, claims 36-45, respectively, will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Allowable Subject Matter

19. Claims 8-10 and 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hunt et al. (US Patent No. 5,400,322) discloses a method and a system for updating the bit allocations in a multicarrier transmission system.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (703) 305-4960. The examiner can normally be reached on Monday - Wednesday (8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Betsy L. Deppe
Primary Examiner
Art Unit 2634
August 10, 2003